



**UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office**

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

CH

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
-----------------	-------------	----------------------	---------------------

09/290,777 04/13/99 STUTSMAN

D 20153

EXAMINER

QM12/0620

ERGENBRIGHT, F

ART UNIT

PAPER NUMBER

3722

2

DATE MAILED:

06/20/00

PETER N LALOS
LALOS & KEEGAN
1146 NINETEENTH STREET NW
FIFTH FLOOR
WASHINGTON MD 20036-3703

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

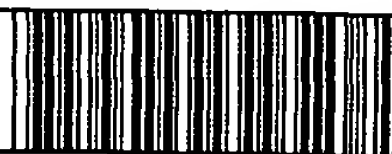
Office Action Summary

Application No.
09/290,777

Applicant(s)
Stutsman

Examiner
Erica Ergenbright

Group Art Unit
3722



☒ Responsive to communication(s) filed on Apr 13, 1999

☐ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-20 is/are pending in the application.

Of the above, claim(s) _____ is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-20 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☒ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 3722

DETAILED ACTION

Faxing of Responses to Office Actions

1. In order to reduce pendency and avoid potential delays, TC 3700 is encouraging FAXing of responses to Office Actions directly into the Group at (703) 305-3579. This practice may be used for filing papers not requiring a fee. It may also be used for filing papers which require a fee by applicants who authorize charges to a PTO deposit account. Please identify the examiner and art unit at the top of your cover sheet. Papers submitted via FAX into TC 3700 will be promptly forwarded to the examiner.

Specification

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

The following is a quotation of 37 CFR 1.71(a)-(c):

- (a) The specification must include a written description of the invention or discovery and of the manner and process of making and using the same, and is required to be in such full, clear, concise, and exact terms as to enable any person skilled in the art or science to which the invention or discovery appertains, or with which it is most nearly connected, to make and use the same.
- (b) The specification must set forth the precise invention for which a patent is solicited, in such manner as to distinguish it from other inventions and from what is old. It must describe completely a specific embodiment of the process, machine, manufacture, composition of matter or improvement invented, and must explain the mode of operation or principle whenever applicable. The best mode contemplated by the inventor of carrying out his invention must be set forth.
- (c) In the case of an improvement, the specification must particularly point out the part or parts of the process, machine, manufacture, or composition of matter to which the improvement relates, and the description should be confined to the specific improvement and to such parts as necessarily cooperate with it or as may be necessary to a complete understanding or description of it.

Art Unit: 3722

3. The specification is objected to under 37 CFR 1.71 because it fails to provide an adequate written description of the invention. Specifically, it is unclear how the bearings 18 and/or 19 are axially displaceable relative to sleeve 17 if the bearings are restrained axially on one side by surface 14b and on the other side by cover plate 50.

Claim Rejections - 35 USC § 112

4. Claims 15-20 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. See the above objection to the specification under 37 CFR 1.71 for a detailed explanation of the deficiencies of the specification.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

There are several limitations in the claims that lack sufficient antecedent basis. Examples of these limitations are: "said bearing seat" in claims 1, 11, 12; "said race" in claim 14; "said first bearing seat" in claim 15; "said first sleeve surface" in claim 15;

Art Unit: 3722

“said second bearing” in claims 15 and 16; “said second bearing seat” in claim 15; “the other race” (of said second bearing) in claim 15; “said house” in claim 15; “the outer race” in claim 16; and “said annular surface” in claim 16.

Throughout the claims, there is no axis provided for determining what is meant by the terms “axial” or “axially”. There is no frame of reference provided for determining what is meant by “outwardly facing” in claim 16.

In claim 10, it is unclear what “outer race” is referred to. In claim 1, line 4, it is unclear whether “a race” is one of the “inner and outer races” or is an additional race. In claim 6, line 5, it is also unclear whether “an inner race” is meant to be the previously recited inner race, or is an additional inner race.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1, 4-6, and 8-10 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 1,761,841 (Nenninger). Nenninger teaches a machine tool spindle 29 (page 1, line 86) that is fixed on one end and allowed to move axially with respect to the rotational axis of the spindle on the other end as the spindle expands and contracts due to variances in temperature (page 2, lines 22-37 and 128-130). The spindle is mounted in a

Art Unit: 3722

column or housing C (see Figure 1), and is supported with roller bearings 74 (Figure 5) and 25, 26 (Figure 4) on opposite ends of the spindle, where the bearings are positioned within enlarged seats of the housing (Figures 2, 4, and 5). The bearings have inner and outer races (Figures 4 and 5). Bearing 74 is mounted on the rear of the spindle (page 1, line 62), and floats or axially moves within sleeve 70 (page 2, lines 110-130). Rigid annular sleeve 70 is disposed between bearing 74 and the housing (Figure 5) and is fixed with respect to (or "bonded to") the housing via stud screw 72 (Figure 5 and page 2, lines 114-116). The spindle 29 has a nose 30 that is adapted to engage a cutter arbor or "tool holder" (page 1, column 85-87).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 2, 3, 7, and 11-14 rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 1,761,841 (Nenninger) as applied to claims 1 and 6 above.

Nenninger discloses all of the limitations of claims 2, 3, 7, and 11-14, as set forth in the above 102(b) rejection. Also, as shown in Figure 5, it appears that the bearing seat is slightly oversized with respect to the sleeve 70. Nenninger also specifically teaches that the bearing cone 27 is press fit onto the spindle, and states that the other bearing 74

Art Unit: 3722

“floats with the end of the spindle” (page 2, lines 128-129), implying that the bearing 74 is also press fit onto the spindle. Nenninger does not specifically teach that the oversize of the bearing seat is in the range of 0.010 to 0.015 inches. Nenninger also does not teach the use of an epoxy resin adhesive to bond the sleeve 70 to the housing, but instead teaches the stud screw 72 to perform the same function. However Official Notice is taken that the use of “epoxy resin adhesive” to bond metal to metal and to let this “epoxy resin adhesive” set or dry was notoriously well known in the art at the time the invention was made. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have applied epoxy resin adhesive to one or both of the outer surface of the fixed sleeve 70 taught by Nenninger, or the inner surface of the housing taught by Nenninger, to fix the sleeve with respect to the housing, and to let this adhesive dry or set. With respect to the oversize of the bearing seat, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have made the oversize whatever size was desired, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

11. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 1,761,841 (Nenninger) as applied to claim 1 above. Nenninger teaches all aspects of the invention as set forth in claim 15 as described in the above 102(b) rejection of claim 1 except for a second moveable bearing in a second fixed sleeve, and that the

Art Unit: 3722

fixed sleeves are fixed with adhesive bonding material that is allowed to dry or set. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have added another fixed sleeve and moveable bearing to the device taught by Nenninger, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. With respect to the adhesive bonding material, Official Notice is taken that the use of "adhesive bonding material" to bond metal to metal, and to let this "adhesive bonding material" set or dry was notoriously well known in the art at the time the invention was made. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have applied adhesive bonding material to one or both of the outer surface of the fixed sleeve 70 taught by Nenninger, or the inner surface of the housing taught by Nenninger, to fix the sleeve with respect to the housing, and to let the adhesive bonding material dry or set.

12. Claims 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 1,761,841 (Nenninger). Nenninger teaches all aspects of the invention as claimed in claims 16-20 as set forth above, and also teaches the use of a spacer sleeve 75 (page 2, line 120) that is between the bearings (Figures 4 and 5). Nenninger also teaches the use of nuts 77 (page 2, line 126, Figure 5) and 33 (page 1, line 92, Figure 4) to retain the bearings within the housing opening. Nenninger also teaches the use of a cover plate 76 (Figure 5) that engages a race of the first bearing. Nenninger does not teach a second

Art Unit: 3722

moveable bearing in a second fixed sleeve, nor that the fixed sleeves are fixed with adhesive bonding material that is allowed to dry or set, nor does Nenninger teach that the cover plate engages the outer race of the first bearing. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have added another fixed sleeve and moveable bearing to the device taught by Nenninger, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 8. With respect to the adhesive bonding material, Official Notice is taken that the use of "adhesive bonding material" to bond metal to metal, and to let this "adhesive bonding material" set or dry was notoriously well known in the art at the time the invention was made. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have applied adhesive bonding material to one or both of the outer surface of the fixed sleeve 70 taught by Nenninger, or the inner surface of the housing taught by Nenninger, to fix the sleeve with respect to the housing, and to let the adhesive bonding material dry or set. With respect to the cover plate engaging the outer race, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have rearranged the cover plate taught by Nenninger such that it engages the outer race of the bearing, since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse*, 86 USPQ 70.

Art Unit: 3722

Prior Art References

13. The prior art references listed in the attached PTO-892, but not used in a rejection of the claims, are cited for their device structure. U.S. Patent No.'s 5,878,475, 4,815,903, 5,471,724, and 3,058,559 all teach machine tool spindles that have bearings within sleeves. U.S. Patent No. 5,096,347 teaches a spindle with a hydraulic drawbar. U.S. Patent No. 5,305,525 teaches the use of epoxy resin adhesive, and letting it set or dry. U.S. Patent No. 4,854,750 teaches that epoxy resin adhesive and screws are functional equivalents. Millwrights and Mechanics Guide, 4th ed., 1989, pages 316-318 teaches that when a shaft has multiple bearings, one should be fixed, and the rest should float to compensate for temperature variations.

Contact Information


14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erica Ergenbright whose telephone number is (703) 308-6395. The examiner can normally be reached on Monday through Thursday from 7:30 a.m. to 5:00 p.m., and every other Friday from 7:30 a.m. to 4:00 p.m. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, A.L. Wellington can be reached at (703) 308-2159. The fax number for TC 3700 is (703) 305-3579. Any inquiry of a general nature or relating to the status of this application or proceeding


Application/Control Number:

Page 10

Art Unit: 3722

should be directed to the TC 3700 receptionist whose telephone number is (703) 308-1148.

ee

June 8, 2000


A. L. WELLINGTON
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 3700